



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,838	07/16/2003	Hideyuki Hisashi	71360-55706-C	1771
21874	7590	04/22/2004	EXAMINER	
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205			VIJAYAKUMAR, KALLAMBELLA M	
			ART UNIT	PAPER NUMBER

1751

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/621,838	<b>Applicant(s)</b> HISASHI ET AL.	
	<b>Examiner</b> Kallambella Vijayakumar	<b>Art Unit</b> 1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/16/2003</u> . | 6) <input type="checkbox"/> Other: ____.  |

---

*Detailed Action*

---

- This is a continuation of Sl. No. 08/640,115 filed 03/15/2001, now US Patent 6,455,107. Claims 1-10 are currently pending with the application.
- Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an applications filed in Japan on 10/29/1999. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said applications, since the United States application was filed more than twelve months thereafter. The information disclosure statement (IDS) submitted on 06/17/2003 is in compliance with the provisions of 37 CFR 1.97, and accordingly, the examiner has considered the information disclosure statement.

---

*Claim Rejections - 35 USC § 112*

---

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- Claims 2 and 7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification

provides information of on the oxidation of antioxidant materials during heating of the paint, but neither claims nor specification provide a composition comprising of a previously oxidized antioxidant material.

*Claim Rejections - 35 USC § 102*

*Claim Rejections - 35 USC § 103*

---

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1-10 are rejected under 35 U.S.C. 102(e) as being anticipated or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sekhar et al (US Patent 6,455,107) in view of Nyacol Data Sheet (10/1999) or Snowtex Data Sheet.

Normally, only one reference should be used in making a rejection under 35 U.S.C. 102. However, a 35 U.S.C. 102 rejection over multiple references has been held to be proper when the extra references are cited to (SEE MPEP 2131.01):

- (A) Prove the primary reference contains an "enabled disclosure;"
- (B) Explain the meaning of a term used in the primary reference; or
- (C) Show that a characteristic not disclosed in the reference is inherent.

Sekhar et al disclose coating compositions for the prevention of oxidation of carbonaceous materials and electrodes from a colloidal slurry comprising of (a). a carrier such as colloidal silica or zirconia; (b). a powder additives such as carbide/silicide/silicon carbide and molybdenum silicide; (c). metallic particles such as Ni, Cr, (d). Micropyretic agents such as B, Si, C; (e). metal organics such as tetraethyl silicates; (f). pyrolizable silanes/silazes; (g) buffer solutions to modify pH in alkaline/acid ranges, and (g) binding agents such as methylcellulose, polyvinyl butyral (Col-4, Line-37 to Col-6, Line-45). Sekhar et al further define the particle size of colloidal particles to be 0.5 nm to micrometer, that could either be lyophylic or lyophobic (Col-3, Lines: 1-18). Colloidal silica as a binder (a)

would meet the limitations of inorganic colloid binder and an antioxidant material in claims 1 and 9, and its particle size limitations in Claims 4 and 9, and the limitation of a previously oxidized antioxidant material in claims 2 and 7, and an antioxidant material in claims 1 and 6. Silica, alumina and oxides have been defined by the specification (Page-11) and Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). SiC as powder additive (b) would meet the limitation of an antioxidant material in Claims 1, 3, 6, and 8. The oxidation of carbides/nitrides during the firing of the paste-coated substrate would be inherent and would meet the limitation of claims 2 and 7. The transition metal elements such as Ni and Cr in (c) and (d) would meet the limitation of transition metal in Claims 1, 5-6 and 10. The organic binders in (g) in the colloidal coating composition would meet the limitation of polymer emulsion in claims 1 and 6. Nyacol and Snowtex Technical Data Sheets show the particle size, alkali content and the inorganic colloidal content. The compositions of given in Tables-IV and V and the Example-IV would inherently meet the alkali metal content in the claim-6 in view of the technical data sheet by Nyacol and/or Snowtex (Col-8, Line-40 to Col-10, Line-34). The acidic/neutral buffers (g) would inherently meet the limitation of pH in claim-1. and the coating slurry would meet the limitation of a conductive antioxidant paint in the instant claims 1-10. All the limitations of the instant claims are met.

The reference is anticipatory.

In the alternative that the disclosure by Sekhar et al be insufficient to arrive at the limitations of the instant claims, it would have been obvious to of ordinary skill in the art to make

modifications to the compositions based on the choice of design to benefit from optimum performance based on the application, because Sekhar et al teach such variations to attain the coatings, and with the expectation of reasonable success in arriving at the limitations of the instant claims by the applicants.

2. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Nyacol Data Sheet (10/1999) or Snowtex Data Sheet, further in view of Morikawa et al (JP 07-268,250).

Morikawa et al the composition of a conductive antioxidant coating material comprising of 20-90 wt% of fire-resistant aggregate such as SiC, B<sub>4</sub>C, TiN; 2-30 wt% binder such as colloidal silica, zirconia; 2-30 wt% carbon black; 0.05-10 wt% polymer emulsion such as latexes, 20-70 wt% graphite, 0.01-3 wt% water soluble binder such as acrylic resin, and conductive particles of Transition metals such as Fe, Co, Ni, Cr and V (Abstract, Sections: 0005-0009). Morikawa et al further teach benefits of incorporating carbon black, graphite and a soluble polymer binder in the composition. These are the same materials of composition claimed by the instant claims and instant specification and the limitation of pH of the paint in Claim-1 would be inherent. The particle size of the inorganic colloidal binders in claims 4 and 9, and the alkali content in Claim-6 would be inherent by virtue of the composition by Morikawa et al and the inorganic sol composition data by Nyacol and/or Snowtex. Silica/Zirconia would meet the limitation of previously oxidized anti-oxidant material in claims 2 and 7. The oxidation of carbides/nitrides during the firing of the paste-coated substrate would be inherent and would meet the limitation of claims 2 and 7. All the limitations of the instant claims are met.

The reference is anticipatory.

3. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morikawa et al (JP 07-268,250) in view of Nyacol Data Sheet (10/1999) or Snowtex Data Sheet, further in view of Sekhar et al (US Patent 6,455,107).

The disclosures on the coating compositions by Sekhar et al and Morikawa et al are set forth as above under Rejections-1 and 2 respectively. Both, Sekhar et al and Morikawa et al use the same components identified/used/claimed by the applicants. Morikawa et al further teach benefits of incorporating carbon black, graphite and a soluble polymer binder in the coating composition.

Morikawa et al do not expressly disclose either the pH or the alkali content in the of the coating composition. Sekhar et al disclose all the limitation of the instant claims by the applicants, but do not expressly identify the polymer dispersion as a polymer emulsion.

It would have been obvious to an artisan of ordinary skill to modify the composition of Morikawa al with the teachings of Sekhar et al at the time the invention was made by varying the components and varying the pH using various buffers to benefit from improved adhesion, conductivity and antioxidant properties, and without pitting and exfoliation of the coating over materials such as carbonaceous electrodes, because the both the disclosures are in the analogous art and on antioxidant coatings, and with the expectation of reasonable success in arriving at the limitations of the instant claims by the applicants.



---

*Conclusion*

---

- The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: De Nora et al (US Patent 5,676,807), Sobata et al (US Patent 4,719,038), Funabashi et al (JP 60-251218) and Sasaki et al (JP 05-171261).
- Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on M-Th, 07.00 - 16.30 hrs, Alt. Fri: 07.00-15.30 hrs.
- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kmv  
April 17, 2004.

  
Mark Kopec  
Primary Examiner